

report10045150.txt

-----claim tree-----

1----2  
+----8----9  
+----11  
+----10  
+----6----7  
+----4----5  
+----3

12---13  
+----29  
+----28  
+----27  
+----26  
+----25  
+----24  
+----23  
+----22  
+----17----18  
+----21  
+----20  
+----19  
+----16  
+----15  
+----14

-----112-----

-----best-----

6001795;5741901;5981738;5871573;6017862;5962383;5573702;6060439;5994283;4822514;5604195;5486307;4929533;5  
108643;5736496;5075026  
5414144  
6576324  
5002680  
5076954  
6579826  
6572228  
6565953  
6223398  
5158766  
6248162  
5082584  
6509132  
5531818  
6387871  
6579655  
6548233  
4414128  
5389282  
6576400  
4283384  
4540505  
6166173  
6468961  
6316142  
4622303  
6461631  
6130200  
4456572  
6573033  
5663259  
4247330  
6548449  
5321152  
5403509

-----classlist-----

510/365;510/506;510/417;510/238;510/432;510/424;347/100;510/201;510/245;510/176;134/40;510/421;134/38;428  
/195;510/405;510/407;510/426

106/3113  
510/101  
510/174  
510/463  
510/434  
510/433  
510/427  
510/362  
510/437  
510/352  
510/164  
516/58  
510/104  
510/108  
510/416  
510/360  
510/400  
510/235  
510/470  
430/200  
510/242  
516/74  
510/488  
510/505  
510/503  
510/351  
430/201  
347/212  
510/340  
510/175  
510/123  
510/490  
134/42  
516/7  
510/237  
510/431  
510/479  
510/106  
516/66  
516/6  
510/163

-----keywords-----

recording rub calcium acetate monomethyl ether butyl glycol mek propyl acetate butyl lactate barium zinc acetate magnesium acetate zinc chloride magnesium chloride glycol ether nmp pyrrolidone dimethyl ether glycol dimethyl dimethyl dipropylene glycol dipropylene tripropylene glycol tripropylene methyl ether glycol methyl propylene glycol propylene glycol ethers butyl carbitol carbitol ethers cyclic acetone ketones ethyl lactate lactate acetate ethyl butyl acetate ethyl acetate N-methyl pyrrolidone pyrrolidone N-methyl anion zinc calcium divalent emulsified phase emulsion phase organic aqueous emulsion emulsion acidic acrylic resin acrylic colorant rubbing coalescence swelling metallic salt metallic polyvalent water-based printing ink pretreatment reagent pretreated motion applies non-porous porosity trivalent RCOO -and methyl-ethyl-ketone liquid salt polymer dry drying wet vinyl ether resin methyl aqueous cations cation esters ethyl glycol acetate propyl butyl tetrahydrofuran Ethanol non woven woven detergent t deionized butyl ether ethylene glycol spreading samples evaporated stabilized exposure promote favorable hydrocarbon chain chain hydrocarbon bonded anions water-soluble polymer backbone liquids phase separation on separation jet ink thermal stability thermally stable thermally interaction scratch cationic surfactant cationic amide nitrogen atom nitrogen heterocyclic unsaturated saturated anionic surfactant surfactant tension reactive reactant depositing inorganic metal ions carboxyl anionic colorants metal ion water-soluble polymeric polymeric droplets dispersion water-insoluble pigments dyes pigment dispersed organic solvent dissolved water-soluble dye water-soluble ink jet dimethyl ether glycol dimethyl dimethyl dipropylene glycol dipropylene tripropylene glycol tripropylene methyl ether glycol methyl propylene glycol propylene glycol ethers butyl carbitol carbitol ethers cyclic acetone ketones ethyl lactate lactate acetate ethyl butyl acetate ethyl acetate N-methyl pyrrolidone pyrrolidone N-methyl anion zinc calcium divalent emulsified phase emulsion phase aqueous emulsion acidic acrylic resin acrylic colorant metallic salt metallic

-----references-----

----- 6001795  
classes:1 510/365 1 510/238 1 510/424 1 510/437 1 510/506  
score: 430

keywords: monomethyl ether;magnesium chloride;glycol ether;dipropylene glycol;dipropylene;tripropylene glycol;tripropylene;propylene glycol;propylene;glycol ethers;ethers;lactate;lactate;calcium;divalent; phase;organic;emulsion;acidic;polyvalent;liquid;salt;polymer;ether;methyl;aqueous;cations;cation;esters;ethyl;glycol;butyl;Ethanol;detergent;ethylene glycol;chain;hydrocarbon;anions;liquids;unsaturated;saturate d;anionic surfactant;surfactant;tension;inorganic;carboxyl;anionic;droplets;dispersion;dyes;dispersed;water-soluble;dipropylene glycol;dipropylene;tripropylene glycol;tripropylene;propylene glycol;propylene;glycol ethers;ethers;ethyl lactate;lactate;calcium;divalent;phase;acidic;precipitate;organic;metal salt;polyvalent metal;polyvalent;emulsion;Inventors;

- 1kyl group has 1 to 6 carbon atoms, 1 methoxy-2-propanol, 1 methoxy-3-propanol, and 1 methoxy-2-, 3- or 4-butanol.
- Representative members of the polypropylene glycol include \*\*dipropylene\*\* glycol and polypropylene glycol having a molecular weight of 150 to 1000, e.g., polypropylene glycol 400. Other satisfactory \*\*glycol\*\* \*\*ethers\*\* are ethylene glycol monobutyl ether (butyl cellosolve), diethylene glycol monobutyl ether (butyl \*\*carbitol\*\*), triethylene glycol monobutyl ether, mono, di, tri \*\*propylene glycol\*\* monobutyl ether, tetraethylene glycol monobutyl ether, mono, di, \*\*tripropylene\*\* glycol monomethyl ether, \*\*propylene\*\* glycol monomethyl ether, ethylene glycol monohexyl ether, diethylene glycol monohexyl ether, \*\*propylene glycol\*\* tertiary butyl ether, ethylene glycol monoethyl ether, ethylene glycol monomethyl ether, ethylene glycol monopropyl ether, ethylene glycol monopentyl ether, diethylene glycol monomethyl ether, diethylene glycol monoethyl ether, ethylene glycol monoethyl ether, mono, di, tributylene glycol monopropyl ether, mono, di, tributylene glycol monobutyl ether, mono, di, tributylene glycol monopentyl ether and mono, di, tributylene glycol monohexyl ether, ethylene glycol monoacetate and \*\*dipropylene\*\* glycol propionate. These glycol type cosurfactants are at a concentration of 0.1 to 10 weight %, more preferably 0.5 weight % to 7 weight %.
- While all of the aforementioned glycol ether compounds provide the described stability, the most preferred cosurfactant compounds of each type, on the basis of cost and cosmetic appearance (particularly odor), are \*\*dipropylene\*\* glycol monomethyl ether and diethylene glycol monobutyl ether. Other suitable water soluble cosurfactants are water soluble esters such as \*\*ethyl\*\* \*\*lactate\*\* and water soluble carbohydrates such as butyl glycosides.

The amount of cosurfactant required to stabil

----- 5741901  
 classes:1 536/76 1 526/2382 1 526/23821 1 527/311 1 527/313 1 527/314 1 536/69  
 score: 398

keywords: rub;propyl acetate;dimethyl;tripropylene;propylene glycol;propylene;ethers;acetone;ketones;butyl acetate;N-methyl;zinc;calcium;organic;acrylic;rubbing;water-based;reagent;liquid;salt;polymer;dry;dryin g;wet;vinyl;resin;methyl;aqueous;esters;ethyl;glycol;acetate;propyl;butyl;ethylene glycol;samples;evaporated;exposure;backbone;unsaturated;saturated;reactive;inorganic;carboxyl;dispersion;pigment;dispersed;organic solvent;dissolved;dimethyl;tripropylene;propylene glycol;propylene;ethers;acetone;ketones;butyl acetate;N-methyl;zinc;calcium;acrylic;precipitate;solids;rubbing;organic;water-based;reagent;print;rubbed;

- pitate can be filtered or centrifuged and washed with water, preferably at a temperature of about 10.degree. C. to 90.degree. C.
- Alternatively, the modified cellulose esters of the present invention can be prepared by dissolving the cellulose ester in an \*\*organic\*\* solvent devoid of carboxylic acids and reacting it with maleic anhydride in the presence of a proton acceptor. The reaction is heated and the product precipitated by mixing a non-solvent with the reaction mixture. The product is then isolated by filtration, washed with water, and dried. In this regard, suitable \*\*organic\*\* solvents include \*\*ketones\*\* such as \*\*acetone\*\*, 2-butanone, 2-pentanone, cyclohexanone; esters such as methyl, ethyl, propyl, iso-propyl, isobutyl, and butyl esters of lower alkyl carboxylic acids; \*\*ethers\*\* such as diethyl and dibutyl \*\*ethers\*\*, dialkyl \*\*ethers\*\* of glycols such as \*\*dimethyl\*\*, dipropyl, and dibutyl glycols of ethylene and \*\*propylene\*\* glycols, tetrahy drofuran, and dioxane; dialkyl esters of lower alkyl monocarboxylic acids of ethylene and \*\*propylene glycol\*\*'s such as diacetyl, dipropionyl, dibutyl esters of ethylene and \*\*propylene glycol\*\*'s; sulfoxides such as sulfolane, \*\*dimethyl\*\* sulfoxide and diethyl sulfoxide; dialkylamides of formic, acetic, and propionic acids, \*\*N-methyl\*\* pyrrolidinone; and chlorinated hydrocarbons such as methylene chloride, chloroform, and

chlorobenzene.

The solvent:cellulose ester ratio by weight is generally from about 1:1 to about 20:1, preferably about 2:1 to about 5:1.  
The proton acceptor can be, for example, a trialkyl amine such as trimethylamine, triethylamine, tripropylamine, tributylamine, or a mixture thereof; alkyl substituted pyrrolidines and piperidines; dialkyl anilines; pyridine and alkyl substituted pyridines; and inorganic alkaline and alkaline earth carbonates. Such proton acceptors are preferably present in a proportion of about 0.1:1 to

----- 5981738  
classes:1 536/76 1 526/2382 1 526/23821 1 527/311 1 527/313 1 527/314 1 536/69  
score: 396

keywords: rub;propyl acetate;dimethyl;tripropylene;propylene glycol;propylene;ethers;acetone;ketones;butyl acetate;N-methyl;zinc;calcium;organic;acrylic;rubbing;water-based;reagent;liquid;salt;polymer;dry;dryin g;wet;vinyl;resin;methyl;aqueous;esters;ethyl;glycol;acetate;propyl;butyl;ethylene glycol;samples;evapora ted;exposure;backbone;unsaturated;saturated;reactive;inorganic;carboxyl;dispersion;pigment;dispersed;orga nic solvent;dissolved;dimethyl;tripropylene;propylene glycol;propylene;ethers;acetone;ketones;butyl aceta te;N-methyl;zinc;calcium;acrylic;precipitate;solids;rubbing;organic;water-based;reagent;print;rubbed;

- then isolated by filtration, washed with water, and dried. In this regard, suitable \*\*organic\*\* solvents include \*\*ketones\*\* such as \*\*acetone\*\*, 2-butanone, 2-pentanone, cyclohexanone; esters such as methyl, ethyl, propyl, iso-propyl, isobutyl, and butyl esters of lower alkyl carboxylic acids; \*\*ethers\*\* such as diethyl and dibutyl \*\*ethers\*\*, dialkyl \*\*ethers\*\* of glycols such as \*\*dimethyl\*\*, dipropyl, and dibutyl glycols of ethylene and \*\*propylene\*\* glycols, tetrahydrofuran, and dioxane; dialkyl esters of lower alkyl monocarboxylic acids of ethylene and \*\*propylene glycol\*\*'s such as diacetyl, dipropionyl, dibutyl esters of ethylene and \*\*propylene glycol\*\*'s; sulfoxides such as sulfolane, \*\*dimethyl\*\* sulfoxide and diethyl sulfoxide; dialkylamides of formic, acetic, and propionic acids, \*\*N-methyl\*\* pyrrolidinone; and chlorinated hydrocarbons such as methylene chloride, chloroform, and chlorobenzene.

The solvent:cellulose ester ratio by weight is generally from ab

----- 5871573  
classes:1 106/1627 1 106/16271 1 106/16272 1 106/16801 1 106/1711  
score: 387

keywords: rub;propyl acetate;dimethyl;tripropylene;propylene glycol;propylene;ethers;acetone;ketones;butyl acetate;N-methyl;zinc;calcium;organic;acrylic;rubbing;water-based;reagent;liquid;salt;polymer;dry;dryin g;wet;vinyl;resin;methyl;aqueous;esters;ethyl;glycol;acetate;propyl;butyl;ethylene glycol;samples;evapora ted;exposure;backbone;unsaturated;saturated;reactive;inorganic;carboxyl;dispersion;pigment;dispersed;orga nic solvent;dissolved;dimethyl;tripropylene;propylene glycol;propylene;ethers;acetone;ketones;butyl aceta te;N-methyl;zinc;calcium;acrylic;precipitate;solids;rubbing;organic;water-based;reagent;print;rubbed;

- lvents include, but are not limited to \*\*ketones\*\*, esters, chlorinated hydrocarbons, aqueous buffer solutions, and mixtures thereof. Specific examples include, but are not limited to \*\*acetone\*\*, 2-butanone, 2-pentanone, \*\*ethyl acetate\*\*, propyl acetate, \*\*butyl acetate\*\*, methyl alcohol, ethyl alcohol, ethylene glycol monoethyl ether, and mixtures thereof. Also, further suitable solvents can be of the ethylenically unsaturated type that, in addition to dissolving the modified cellulose ester, can crosslink with the cellulose upon exposure to UV radiation in the presence of a photoinitiator. Specific examples include, but are not limited to, ethyl(meth)acrylate, methyl(meth)acrylate, hydroxyethyl(meth)acrylate, diethylene glycol diacrylate, trimethylolpropane triacrylate, 1,6 hexanediol di(meth)acrylate, neopentyl glycol di(meth)acrylate, and mixtures thereof.  
The amount of suitable solvent in the non-dispersed \*\*water-based\*\* coating comp

----- 6017862  
classes:1 510/163 1 510/175 1 510/176 1 510/201  
score: 356

keywords: glycol ether;pyrrolidone;dimethyl;dipropylene glycol;dipropylene;glycol methyl;propylene glycol

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/propylene;glycol ethers;ethers;cyclic;ketones;ethyl acetate;N-methyl pyrrolidone;pyrrolidone;N-methyl;calcium;organic;liquid;polymer;dry;vinyl;ether;resin;methyl;aqueous;esters;ethyl;glycol;acetate;propyl;butyl;tetrahydrofuran;ethylene glycol;hydrocarbon;nitrogen atom;nitrogen;heterocyclic;unsaturated;surfactant;inorganic;polymeric;dissolved;water-soluble;dimethyl;dipropylene glycol;dipropylene;glycol methyl;propylene glycol;propylene;glycol ethers;ethers;cyclic;ketones;ethyl acetate;N-methyl pyrrolidone;pyrrolidone;N-methyl;calcium;organic;tetrahydrofuran;fair;

- lected from claim 7 above. Examples of these \*\*glycol \*\*ethers\*\* are ethylene  
\*\*glycol methyl\*\* ether, diethylene \*\*glycol methyl\*\* ether, ethylene glycol ethyl  
ether, diethylene glycol ethyl ether, ethylene glycol propyl ether,  
diethylene glycol propyl ether, ethylene glycol butyl ether, diethylene  
glycol butyl ether, methyl methoxybutanol, \*\*propylene glycol methyl ether\*\*,  
\*\*dipropylene\*\* glycol, \*\*dipropylene glycol methyl\*\* ether, \*\*propylene glycol\*\*  
propyl ether, \*\*dipropylene\*\* glycol propyl ether, \*\*propylene glycol\*\* butyl  
ether, and \*\*dipropylene\*\* glycol butyl ether. In the composition listed  
R.sub.10, R.sub.11 and R.sub.12 can be a number C.sub.1 to C.sub.10 alkyl,  
preferably C.sub.1 to C.sub.6 alkyl, more preferably C.sub.1 to C.sub.4  
alkyl. Among the most preferred are \*\*propylene glycol\*\* butyl ether,  
\*\*dipropylene glycol methyl\*\* ether, \*\*dipropylene\*\* glycol, methyl methoxy  
butanol and diethylene glycol butyl ether.  
Preferably, the \*\*pyrrolidone\*\* component of the m